

Materials Design Analysis Reporting (MDAR) Checklist for Authors

The MDAR framework establishes a minimum set of requirements in transparent reporting applicable to studies in the life sciences (see Statement of Task: [doi:10.31222/osf.io/9sm4x](https://doi.org/10.31222/osf.io/9sm4x)). The MDAR checklist is a tool for authors, editors and others seeking to adopt the MDAR framework for transparent reporting in manuscripts and other outputs. Please refer to the MDAR Elaboration Document for additional context for the MDAR framework.

Materials

Antibodies	Yes (indicate where provided:	n/a
For commercial reagents, provide supplier name, catalogue number and RRID, if available.	Methods/Paragraph 10 /Page6	
Cell materials	Yes (indicate where provided:	n/a
Cell lines: Provide species information, strain. Provide accession number in repository OR supplier name, catalog number, clone number, OR RRID	Methods/Paragraph 3/Page4	
Primary cultures: Provide species, strain, sex of origin, genetic modification status.		n/a We didn't use it
Experimental animals	Yes (indicate where provided:	n/a
Laboratory animals: Provide species, strain, sex, age, genetic modification status. Provide accession number in repository OR supplier name, catalog number, clone number, OR RRID		n/a We didn't do it
Animal observed in or captured from the field: Provide species, sex and age where possible		n/a We didn't do it
Model organisms: Provide Accession number in repository (where relevant) OR RRID		n/a We didn't do it
Plants and microbes	Yes (indicate where provided:	n/a
Plants: provide species and strain, unique accession number if available, and source (including location for collected wild specimens)		n/a We didn't use it
Microbes: provide species and strain, unique accession number if available, and source		n/a We didn't use it
Human research participants	Yes (indicate where provided:	n/a
Identify authority granting ethics approval (IRB or equivalent committee(s), provide reference number for approval.	Methods/Paragraph 1/Page4 Footnote/Paragraph3/Page12	
Provide statement confirming informed consent obtained from study participants.	Footnote/Paragraph3/Page12	
Report on age and sex for all study participants.	Results/Paragraph 2/Page7	

Design

Study protocol	Yes (indicate where provided:	n/a
For clinical trials, provide the trial registration number OR cite DOI in manuscript.		n/a This was not a clinical trial.
Laboratory protocol	Yes (indicate where provided:	n/a
Provide DOI or other citation details if detailed step-by-step protocols are available.	Methods/Paragraph 3-9/Page4-6	
Experimental study design (statistics details)	Yes (indicate where provided:	n/a
State whether and how the following have been done, or if they were not carried out.		
Sample size determination	Methods/Paragraph 1/Page 4	
Randomisation	Methods/Paragraph 1/Page 4	
Blinding	Methods/Paragraph 1/Page 4	
Inclusion/exclusion criteria	Methods/Paragraph 1/Page 4	
Sample definition and in-laboratory replication	Yes (indicate where provided:	n/a
State number of times the experiment was replicated in laboratory	Figure2/Paragraph 1/Page17 Figure3/Paragraph 1/Page17 Figure4/Paragraph 1/Page17	
Define whether data describe technical or biological replicates	Figure2/Paragraph 1/Page17 Figure3/Paragraph 1/Page17 Figure4/Paragraph 1/Page17	
Ethics	Yes (indicate where provided:	n/a
Studies involving human participants: State details of authority granting ethics approval (IRB or equivalent committee(s), provide reference number for approval.	Methods/Paragraph 1/Page4 Footnote/Paragraph3/Page12	
Studies involving experimental animals: State details of authority granting ethics approval (IRB or equivalent committee(s), provide reference number for approval.		n/a Our research didn't involve experimental animals.
Studies involving specimen and field samples: State if relevant permits obtained, provide details of authority approving study; if none were required, explain why.	Methods/Paragraph 1/Page4 Footnote/Paragraph3/Page12	
Dual Use Research of Concern (DURC)	Yes (indicate where provided:	n/a
If study is subject to dual use research of concern, state the authority granting approval and reference number for the regulatory approval		n/a No, it isn't.

Analysis

Attrition	Yes (indicate where provided:	n/a
State if sample or data point from the analysis is excluded, and whether the criteria for exclusion were determined and specified in advance.		n/a No, it isn't.
Statistics	Yes (indicate where provided:	n/a
Describe statistical tests used and justify choice of tests.	Methods/Paragraph 12/Page7	
Data Availability	Yes (indicate where provided:	n/a
State whether newly created datasets are available, including protocols for access or restriction on access.	Footnote/Paragraph 4/Page12	
If data are publicly available, provide accession number in repository or DOI or URL.		n/a No, the data are not publicly available.
If publicly available data are reused, provide accession number in repository or DOI or URL, where possible.	Footnote/Paragraph 4/Page12	
Code Availability	Yes (indicate where provided:	
For all newly generated code and software essential for replicating the main findings of the study:		
State whether the code or software is available.		n/a Our research didn't involve this.
If code is publicly available, provide accession number in repository, or DOI or URL.		n/a Our research didn't involve this.

Reporting

Adherence to community standards	Yes (indicate where provided: section/paragraph)	n/a
MDAR framework recommends adoption of discipline-specific guidelines, established and endorsed through community initiatives. Journals have their own policy about requiring specific guidelines and recommendations to complement MDAR.		
State if relevant guidelines (eg., ICMJE, MIBBI, ARRIVE) have been followed, and whether a checklist (eg., CONSORT, PRISMA, ARRIVE) is provided with the manuscript.	ICMJE guidelines were followed, as the journal follows ICMJE recommendations for publication.	

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